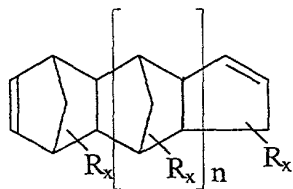
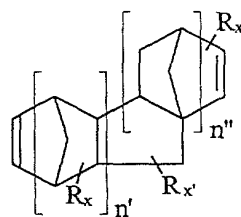


## WHAT IS CLAIMED IS:

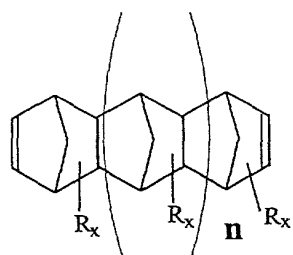
1. An epoxy derivative of trimers or tetramers of optionally substituted cyclopentadiene.
2. An epoxy according to claim 1, wherein said trimers and tetramers comprise one or more bicycloheptane moieties.
3. An epoxy according to claim 2, wherein each of said bicycloheptane moieties is independently substituted with 0, 1 or 2 substituents independently selected from lower alkyls or halogens.
4. An epoxy according to claim 1, wherein said trimers and tetramers comprise one or more of the following structures:



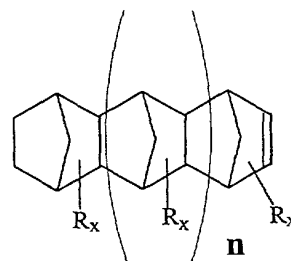
(I)



(II)



(III)



(IV)

wherein:

each R is independently a lower alkyl or a halogen,

n is 1 or 2,

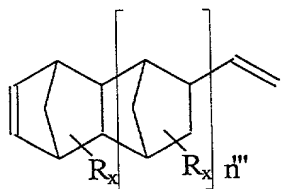
the sum of  $n' + n''$  is 2 or 3,

each x is independently 0, 1 or 2, and

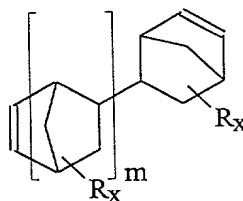
$x'$  is 0, 1, 2.

5. An epoxy derivative of optionally substituted bicycloheptenyl-containing optionally substituted polycyclic moieties.

6. An epoxy derivative according to claim 5, wherein said optionally substituted bicycloheptenyl-containing optionally substituted polycyclic moieties are selected from one or more of the following structures:



(V)



(VI)

wherein:

each R is independently a lower alkyl or a halogen,

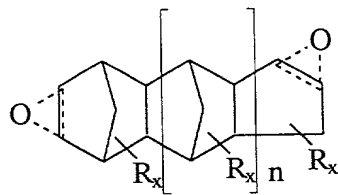
$n'''$  is 0 up to about 8,

m is 1 up to about 9,

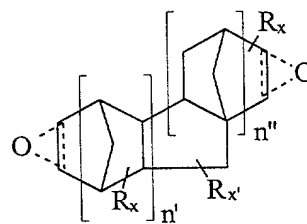
each x is independently 0, 1 or 2, and

$x'$  is 0, 1, 2.

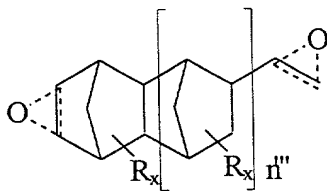
7. A bifunctional epoxy monomer having one or more of the following structures:



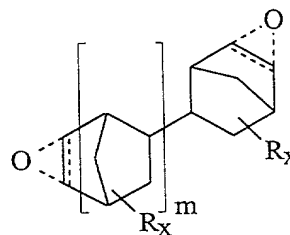
(VII)



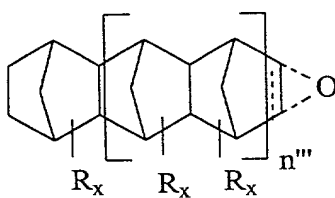
(VIII)



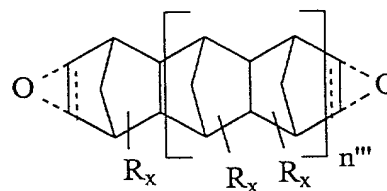
(IX)



(X)



(XI)



(XII)

wherein:

each R is independently a lower alkyl or a halogen,

n is 1 or 2,

the sum of  $n' + n''$  is 2 or 3,

$n'''$  is 0 up to about 8,

$m$  is 1 up to about 9,

each  $x$  is independently 0, 1 or 2, and

$x'$  is 0, 1, 2;

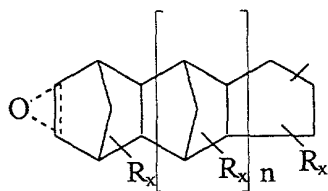
wherein at least one site of unsaturation is epoxidized.

8. A bifunctional monomer according to the following structure:

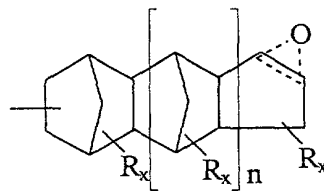


wherein:

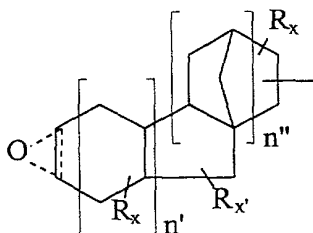
$X$  is a trimer or tetramer of optionally substituted cyclopentadiene bearing at least one functional group, or a radical having one of the following structures:



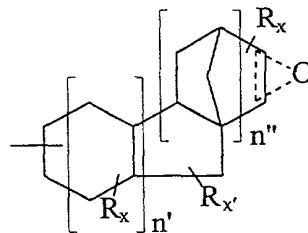
(XIII)



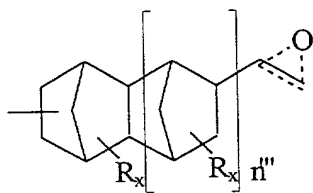
(XIV)



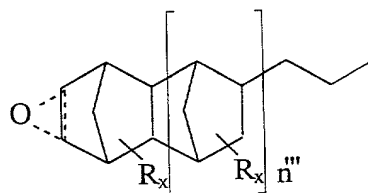
(XV)



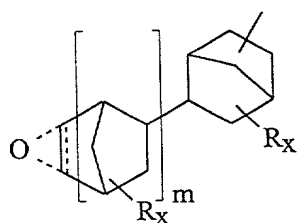
(XVI)



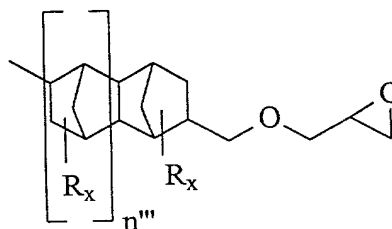
(XVII)



(XVIII)



(XIX)



(XX)

wherein:

each R is independently a lower alkyl or a halogen,

n is 1 or 2,

the sum of  $n' + n''$  is 2 or 3,

$n'''$  is 0 up to about 8,

m is 1 up to about 9,

each x is independently 0, 1 or 2, and

$x'$  is 0, 1, 2;

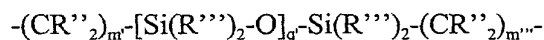
Y is an optional bridging group,

Z is a trimer or tetramer of an optionally substituted cyclopentadiene moiety bearing at least one functional group, a radical having one of said structures (XIII), (XIV), (XV), (XVI), (XVII), (XVIII), (XIX) or (XX), an epoxy or a cycloaliphatic moiety bearing at least one functional group,

wherein at least one of said functional groups on said bifunctional monomer is epoxy.

9. A bifunctional monomer according to claim 8, wherein Y is a siloxane.

10. A bifunctional monomer according to claim 9, said siloxane having the structure:



wherein:

each R'' is independently oxygen, a lower (oxy) alkyl or halogen,

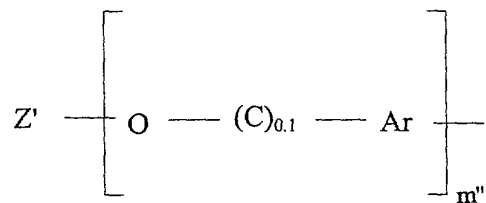
each R''' is independently selected from hydrogen, oxygen, lower (oxy) alkyl or (oxy) aryl,

m' falls in the range of 0 up to about 10,

m'' falls in the range of 0 up to about 10, and

q' falls in the range of 1 up to 50.

11. A bifunctional monomer according to claim 8, wherein Y is aromatic groups having the structure:



wherein:

$m'' = 1, 2 \text{ or } 3,$

each Ar is a monosubstituted, disubstituted or trisubstituted aromatic or heteroaromatic ring having in the range of 3 up to 10 carbon atoms, and

Z' is a high molecular weight branched chain alkyl, alkylene or alkylene oxide species having from about 12 to about 500 atoms in the backbone thereof,

as well as mixtures thereof.

12. A bifunctional monomer according to claim 8, wherein said substituents are independently lower alkyl or halogen.

13. A bifunctional monomer according to claim 8, wherein said functional groups are maleimido, norbornyl, cyanate ester, (meth) acrylates, anhydrides, carboxylic acids, amines, amides, sulfides, or polyhydroxy hydrocarbyls.

14. A thermosetting resin comprising:

- (a) a plurality of cycloaliphatic bifunctional epoxy monomers according to claim 7,
- (b) a curing agent,
- (c) optionally, a co-reactant, and
- (d) optionally, a filler.

15. A thermosetting resin according to claim 14, wherein said curing agent is one or more of a Lewis acid, a metal catalyst, an imidazole, or a cationic catalyst.

16. A thermosetting resin according to claim 14, wherein said co-reactant, if present, has the ability to promote ring opening of epoxides.

17. A thermosetting resin according to claim 14, wherein said co-reactant is one or more of an epoxy, a cyanate ester, an anhydride, an organic acid, a polyamine, a polyamide, a polysulfide, or a polyhydroxy hydrocarbyl.

18. A thermosetting resin according to claim 17, wherein said anhydride is hexahydro-4-methylphthalic anhydride, hexahydro-phthalic anhydride, succinic anhydride, maleic anhydride.

19. A thermosetting resin according to claim 17, wherein said Lewis acid has a metal component selected from Al, B, Pb, Fe, Co, Ni, Cu, Zn, Sn, or Mn.

20. A thermosetting resin according to claim 17, wherein said Lewis acid has a solubilizing component comprising a long chain fatty acid, a chelating ligand or a tertiary amine.

21. A thermosetting resin according to claim 14, wherein said filler, if present, is conductive.

22. A thermosetting resin according to claim 14, wherein said filler, if present, is electrically conductive and/or thermally conductive.

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